REMARKS

Claims 1-23 are pending in the present application. Claims 1, 10 and 21-23 are independent. By this Amendment, claims 1 and 10 are amended. No new matter is involved.

Allowed and Allowable Subject Matter

Applicants acknowledge with appreciation the allowance of claims 21-23 and the indication of allowable subject matter in claims 6 and 18. Claims 16 and 18 have not been re-written in independent form, however, because Applicants respectfully submit that they are allowable because the independent claim from which each of those claims depends is allowable, for reasons discussed, below.

35 U.S.C. § 103 Rejection

Claims 1-2, 5, 7-11, 13-14, 16 and 19-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakamoto et al. (U.S. Patent No. 6,650,390) in view of Song et al. (U.S. Patent No. 6,822,723) and U.S. Patent 6,897,928 to Jang-Kun. This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

In rejecting claims under 35 U.S.C. §103, it is incumbent on the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See* In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one of ordinary

skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention.

Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. F-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. These showings must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." *See* In re Dembiczak, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617 (Fed. Cir. 1999). *Note* In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be suggested or taught by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1970). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Moreover, a factual inquiry whether to modify a reference must be based on objective evidence of record, not merely conclusory statements of the Examiner. *See* In re Lee, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

Additionally, a reference may be said to teach away from arriving at a claimed invention when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. The degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant. *See* W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1550-51, 220 USPQ 303, 311 (Fed. Cir. 1983) (the totality of a reference's teachings must be considered), cert. denied, 469 U.S. 851 (1984); In re Sponnoble, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969) (references taken in combination teach away since they would produce a "seemingly inoperative device"); In re Caldwell, 319 F.2d 254, 256, 138 USPQ 243, 245 (CCPA 1963) (reference teaches away if it leaves the impression that the product would not have the property sought by the applicant). *See* In re Gurley, 31 USPQ2d 1130 (Fed. Cir. 1994).

The Office Action admits that Sakamoto does not disclose that its color filter layer 418 has an opening therein and that Sakamoto does not disclose a protrusion on the second substrate corresponding to the opening in the color filter layer. Applicants agree with this admission. Applicants also note that independent claims 1 and 10 have been amended to recite a combination of features including a pixel electrode without an

opening, a feature not disclosed or suggested by Sakamoto. Nor does Song, the secondary reference, show a pixel electrode without an opening. Furthermore, nor does Jang-kun, the tertiary or "evidence" reference, show a pixel electrode without an opening. Accordingly, no matter how these three references are combined, they will not result in, or render obvious, the claimed invention.

Applicants also respectfully submit that the Office Action fails to make a *prima facie* case that one of ordinary skill in the art would be properly motivated to modify Sakamoto in view of Song and Jang-kun to arrive at, or otherwise render obvious, the claimed invention and that these three references have a number of fundamental differences that teach away from making the proposed modification of Sakamoto in view of Song and Jang-kun.

Firstly, Sakamoto discloses that the prior art includes protrusions or projections 114 and 125 on opposite sides of the liquid crystal medium to establish domains but declines to use them in his invention, which is disclosed in Figs. 4-8. In Figs. 4-8, Sakamoto establishes its domains by relying on a slit 425 in its pixel electrode 424.

Thus, one of ordinary skill in the art would have no incentive to use protrusions to set up domains in Sakamoto because Sakamoto discloses them as being in the prior art yet not using them in its disclosed invention shown in Figs, 4-8.

This last argument was presented in the Amendments filed on October 26, 2005 and June 12, 2006 and has not been addressed in this Office Action, contrary to the explicit requirements set forth in MPEP §707.07(f). Thus, this last argument stands completely un-rebutted.

Secondly, nor does Sakamoto disclose a pixel electrode without an opening, as claimed, so there is no objective factual evidence of a basis in Sakamoto to use such a positively recited pixel electrode feature in Sakamoto.

Thirdly, Sakamoto's domains are not disclosed to be set up or influenced in any way by its filter 418. Accordingly, one of ordinary skill in the art would have no incentive to modify Sakamoto's filters to set up domains. Moreover, Sakamoto discloses only a single-piece filter 418 in Fig. 4. There is no disclosure in Sakamoto of a filter with a gap in it.

Applicants respectfully submit that Sakamoto clearly discloses that its color filter 418 is a single piece color filter that has no openings or gaps in it.

In view of what is disclosed by Sakamoto, as discussed above, Applicants respectfully submit that one of ordinary skill in the art would have no incentive to use protrusions to establish domains and/or would have no incentive to use an opening in a color filter to establish domains, or to use a pixel electrode without an opening therein, as claimed.

By not focusing on these teachings, the Office Action fails to present a fair and balanced description of Sakamoto.

Additionally, although (as noted above) the Office Action admits that "Sakamoto does not explicitly disclose that a protrusion on the second substrate and corresponding to the opening of the color filter," Applicants respectfully submit that this statement is misleading in the sense that, as noted above, Sakamoto does not disclose an opening in any of its color filters.

Nor does Sakamoto ascribe any domain creating or domain affecting feature to its filter 418.

And, as noted above, Sakamoto teaches away from using protrusions (e.g., projections 114 and 125) to establish or affect domains, or from using a pixel electrode without an opening therein.

Without addressing these shortcomings of Sakamoto, most of which have been addressed in the last two replies filed by Applicants in this Application, the Office Action proceeds to turn to Song and Jung-kun to remedy the deficiencies in Sakamoto, which are not accurately explained for reasons discussed above.

In cols. 1 and 2, Song discloses a domain type liquid crystal display device that uses an opening pattern at each pixel region; that a protrusion is formed on the opening pattern or, alternatively, that a protrusion or a hollow may be formed under the opening pattern; and a color filter provided at a second substrate at each pixel region with a groove corresponding to the opening pattern of the pixel electrode on the first substrate. Song also discloses that the color filter may be formed "either at the first substrate or at the second substrate such that each color filter has a groove corresponding to the opening pattern." (col. 2, lines 26-29. Song also discloses that its device has a wide viewing angle (col. 1, lines 6-9).

The Office Action concludes that it would be obvious to one of ordinary skill in the art to modify Sakamoto with the protrusion on a substrate corresponding to the opening of the color filter (either at the first substrate or at second substrate) as taught by Song and Jung-kun to easily align the liquid crystal molecules partitioning the pixel region into a plurality of micro-domain so as to obtain a wide viewing angle.

Applicants respectfully disagree for a number of reasons.

Sakamoto already discloses a display with "high contrast, wide viewing angles and steady excellent viewing characteristics" (col. 9, lines 44-50), and the wide viewing angles appear to be due to the fact that the pixel is divided into a plurality of domains (col. 2, lines 16-21).

The Office Action has presented no objective factual evidence that the viewing angle of Sakamoto's device will improve because of the proposed modification of Sakamoto by Song. In fact, based on the disclosure of Sakamoto, it would appear that Sakamoto already has a wide viewing angle device and that one of ordinary skill in the art would not be motivated to turn to Song to improve the wide angle characteristics of Sakamoto. Any suggestion that Song's device would improve the wide-angle characteristics of Sakamoto is just speculation and it is well settled that a rejection cannot properly be based on speculation. An Examiner may not, because he or she doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *See* In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

Moreover, all of Song's illustrated embodiments show a pixel electrode with an opening 211 therein, even when the opening is provided with a protrusion 31, so that, based on Song, one of ordinary skill in the art would have no incentive to modify Sakamoto to provide a pixel electrode without an opening.

In a further attempt to provide motivation, the Office Action turns to Jang-kun as a teaching reference. The Office Action states that Jang-kun is evidence that it would be

obvious to form a protrusion on the common electrode on the upper substrate. Applicants respectfully disagree, for a number of reasons.

Firstly, Jang-kun discloses, in col. 1, lines 29-48, that (1) in the opening pattern formation technique, an opening pattern is formed both at the pixel electrode and the common electrode; (2) in the protrusion pattern formation technique, a protrusion is formed at the pixel electrode and the common electrode, and (3) it is possible that an opening pattern is formed at the pixel electrode while a protrusion is formed at the common electrode.

While Jang-kun does disclose the possibility that that an opening pattern is formed at the pixel electrode while a protrusion is formed at the common electrode, the claimed invention recites a combination of features including a pixel electrode that is without an opening, a feature not disclosed in any of the three applied references, including Jang-kun. Furthermore, Jang-kun fails to provide a color filter layer having an opening on the first substrate, which is a positively recited feature of the claimed invention. In fact, Jang-kun discloses just the opposite of what is claimed in the sense that Jang-kun's color filter layer is located on the second substrate and has no opening that is opposite to a protrusion, as claimed.

Thus, Jang-kun actually teaches away from modifying Sakamoto to arrive at the claimed invention, as suggested in the rejection.

Moreover, this picking and choosing from each of the secondary references only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art instead of analyzing the secondary references for what they disclose to one of ordinary

skill in the art, means that this rejection fails to address the claimed invention as a whole and, thus, is fundamentally unsound and improper.

Accordingly, the Office Action does not make out a *prima facie* case of proper motivation to make the proposed modification of Sakamoto in view of Song.

Furthermore, the speculative argument in the Office Action that the proposed modification of Sakamoto by Song would result in "simplified processing steps" is also not supported by any objective factual evidence of record, is conclusionary and devoid of detail.

Actually, Sakamoto discloses, in col. 9, four specifically mentioned construction steps to make its device (short of adding circuitry), from line 14 to line 40. Song discloses, from col. 1, line 61 to col. 2,, line 33, making its device with no fewer steps than disclosed by Sakamoto. Both references disclose a pixel electrode with a gap, so there are no more steps needed in Sakamoto than in Song to form the pixel electrode gap. In Song, the filters have to be grooved, a step that is not needed in Sakamoto. Additionally, Song has to provide a protrusion on or under, or a groove under, the opening pattern, which Sakamoto does not have to provide. Thus, it would not appear that Song uses simplified steps with respect to those employed by Sakamoto to make its device.

This last argument was presented in the Amendments filed on October 26, 2005 and June 12, 2006, and has not been addressed in this Office Action, contrary to the explicit requirements set forth in MPEP §707.07(f). Thus, this last argument stands completely un-rebutted.

Accordingly, the Office Action fails to provide objective factual evidence that one of ordinary skill in the art would be motivated to make the asserted modification of Sakamoto in view of Song because it would require simplified processing steps.

Additionally, Sakamoto achieves a wide-angle domain type display without using protrusions that Sakamoto describes are in the prior art. Applicants respectfully submit that it would be counterintuitive to revert to providing protrusions in Sakamoto when Sakamoto discloses that its device does not use such a prior art feature.

Furthermore, Sakamoto discloses a working wide angle device without the need to go to the trouble and expense of grooving its filters. Applicants respectfully submit that this would teach away from modifying Sakamoto to provide grooved filters instead of Sakamoto's single piece filters.

Moreover, the Office Action never gets down to the details of exactly what specific components of Sakamoto will be done away with or modified by certain specific components of Song, and exactly how this un-detailed modification will result in a working device. The Office Action's vaguely stated modification of Sakamoto by Song ("with the protrusion on a substrate corresponding to the opening of the color filter") is just an open invitation to experimentation. Applicants respectfully submit that "obvious to try" is not a proper standard on which to reject claims. The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art." In re Dow Chem. Co., 837 F.2d 469, 473 [5 USPQ2d 1529] (Fed. Cir. 1988). Obviousness requires one of ordinary skill in the art have a reasonable expectation of success as to the invention—

"obvious to try" is an incorrect standards. In re O'Farrell, 853 F.2d 894, 903 [7 USPQ2d 1673] (Fed. Cir. 1988).

Also, Applicants respectfully submit that Song has significantly different, structural arrangements than Sakamoto and that one of ordinary skill in the art would recognize this and not try to pick and choose different features of Song to modify the substantially different structure of Sakamoto in some way that is devoid of meaningful details absent a blueprint that has not been provided by the Office Action. In this regard, Applicants respectfully submit that it is well settled that the Examiner may not pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve Inc., 796 F.2d 443, 448, 230 USPQ 416, 419 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987) and In re Kamm, 452 F.2d 1052, 1057, 172 USPQ 298, 301-2 (CCPA 1972), and obviousness cannot be established by locating references which describe various aspects of appellant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what appellants have done. Ex parte Levengood, 28 USPQ2d 1300, 1302 (Bd. App. & Int. 1993). Here the Office Action fails to present any persuasive evidence of such a motivating force and the only blueprint for making the proposed vague modification of Sakamoto is Applicants' disclosure, which is not a proper basis for rejection Applicants' claims.

These last three arguments were presented in the Amendment filed on June 12, 2006 and has not been addressed in this Office Action, contrary to the explicit

requirements set forth in MPEP §707.07(f). Thus, this last argument stands completely un-rebutted.

Seventhly, Applicants can find no disclosure in Jang-kun of a filter on the lower substrate with a gap in it, as recited

A fair, balanced view of the rejection reveals that it does not provide particular objective factual evidence to motivate one of ordinary skill in the art to disregard Sakamoto's explicit disclosure of a device that does not use prior art device protrusions and to provide them for Sakamoto just because Song and Jang-kun make general statements about the fact that protrusions and/or openings may be used. Nor does the outstanding rejection do anything but pick and choose a particular arrangement of protrusions and openings in different parts of a LCD with no basis other than general teachings that various combinations of protrusions and openings in certain LCD elements can work in multi-domain LCD devices. Applicants respectfully submit that this is just an open invitation to experiment, and is nothing more than an improper obvious-to-try rationale and one of ordinary skill in the art would not be motivated to redesign Sakamoto to include protrusions and openings, as recited, in view of the explicit disclosure of Sakamoto that he overcomes prior art problems with devices that use protrusions by not using protrusions.

Accordingly, this rejection fails to make out a *prima facie* case of proper motivation to modify Sakamoto in view of Song and Jang-Kun, as suggested, and is not based on references that disclose all of the recited features such as, for example, a pixel electrode without an opening and, thus, fails to make out a *prima facie* case of obviousness of the claimed invention.

Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 3, 4, 12 and 17 stand rejected under 35 U.S.C. §103(a) as unpatentable over Sakamoto, Song and Jang-kun, as applied above, and further in view of U.S. Patent 6,583,837 to Fukumoto et al. ("Fukumoto"). This rejection is respectfully traversed.

The rejection is improper because of Sakamoto in view of Song and Jang-kun fails to render obvious the invention recited in independent claims 1 or 10, from which these claims depend, for reasons noted above. Moreover Fukumoto is not applied to remedy the deficiencies noted above regarding the Sakamoto-Song-Jang-kun reference combination.

Accordingly, even if it were obvious to modify the Sakamoto-Song-Jang-kun reference combination in view of Fukumoto, the resulting modified version of Sakamoto-Song-Jang-kun would not render claims 3, 4, 12 and 17 obvious.

Accordingly, claims 3, 4, 12 and 17 are clearly patentable over the applied references, and thus the rejection of claims 3, 4, 12 and 17 is improper and must be withdrawn.

Claim 15 stands rejected under 35 U.S.C. §103(a) as unpatentable over Sakamoto, Song, and Jang-kun, as applied above, and further in view of U.S. Patent 5,263,888 to Ishihara et al. ("Ishihara"). This rejection is respectfully traversed.

The rejection is improper because of Sakamoto in view of Song and Jang-kun fails to render obvious the invention recited in claim 14, from which it depends

deficiencies, for reasons noted above. Moreover Ishihara is not applied to remedy those deficiencies.

Accordingly, even if it were obvious to modify the Sakamoto-Song reference combination in view of Ishihara, the resulting modified version of Sakamoto-Song-Jang-kun would not render claim 15 obvious.

Accordingly, claim 15 is clearly patentable over the applied references, and thus the rejection of claim 15 is improper and must be withdrawn.

Conclusion

For the foregoing reasons, the Examiner is respectfully requested to reconsider and withdraw all of the objections and rejections of record, and to provide an early issuance of a Notice of Allowance.

Should there be any outstanding matters which need to be resolved in the present application, the Examiner is respectfully requested to contact Robert J. Webster (Registration No. 46,472) at the telephone number of the undersigned below, to conduct an interview in

an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Date:

Respectfully submitted,

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